



George C. Marshall Space Flight Center  
Marshall Space Flight Center, Alabama 35812

**ED27-OWI-SST-001**  
**BASELINE**  
**FEBRUARY 2, 2000**

---

# **ORGANIZATIONAL WORK INSTRUCTION**

## **WORK PROCESS INSTRUCTIONS**

**ED27 / STRUCTURAL AND DYNAMICS TESTING GROUP**

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 2 of 12

### DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
BASELINE		February 2, 2000	Document converted from OWI-ED72-001, Baseline, due to reorganization. Overall restructure of the document.

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 3 of 12

## 1. INTRODUCTION

- 1.1 Scope. This Organizational Work Instruction (OWI) defines the processes and procedures by which the Structural Strength Team (SST) and Load Control and Measurements Team (LCMT) meet the requirements of the Marshall Management System. From this point on these two teams of ED27 will be referred to as the Structural Strength Team (SST).
- 1.2 Purpose. This OWI describes control concepts for test activities, work flow processes, and test data processing and distribution performed by the SST.
- 1.3 Applicability. This OWI applies to all personnel and work processes for the SST.

## 2. APPLICABLE DOCUMENTS

- |     |              |                                                            |
|-----|--------------|------------------------------------------------------------|
| 2.1 | ED20-OWI-001 | Quality Maintenance Processes                              |
| 2.2 | ED27-OWI-001 | Quality Maintenance Processes                              |
| 2.3 | ED27-OWI-002 | Test Program Configuration Control                         |
| 2.4 | ED27-OWI-003 | Test Operation Procedure<br>Preparation and Change Control |

## 3. DEFINITIONS AND ACRONYMS

- 3.1 Applicable Document. Document called out in the body of a procedure required to carry out elements of that procedure.
- 3.2 Correct Version. The electronic version available from the ED27 Document Library Master List ( [http://masterlist.msfc.nasa.gov/ed/index\\_new\\_ed.html](http://masterlist.msfc.nasa.gov/ed/index_new_ed.html) ) or the signed original copy of a TCP or TPS controlled by the Test Engineer responsible for test coordination.
- 3.3 Data. Electronic or written information, e.g., information obtained during test programs, stored in a variety of media such as magnetic tapes, computer disks, data sheets, log books, real-time strip charts, photographs, video cassettes, etc.
- 3.4 Document Control Custodian (DCC). The Person responsible for processing and maintaining an organizations documentation. This may be the same person as Master List Custodian.

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 4 of 12

- 3.5 Document Library Master List. Controlled list of those documents which make up the Quality Management System, including applicable documents. The SST Document Library Master List is located at:

[http://masterlist.msfc.nasa.gov/ed/index\\_new\\_ed.html](http://masterlist.msfc.nasa.gov/ed/index_new_ed.html)

- 3.6 Master List Custodians. Primary and alternate individuals assigned to maintain and update an organization's master list.
- 3.7 Procedures. Documents that provide detailed step-by-step instructions stating how to perform specific operations.
- 3.8 Quality Records. Documentation of activities performed or results obtained that substantiates completed work in fulfillment of specified customer or Organization requirements. These documents, or Quality Records, provide objective evidence of the activities performed.
- 3.9 Revision. Any change, modification, or newly edited version of a document.
- 3.10 SST Controlled Electronic Version. The electronic version of a available from the ED27 Document Library Master List at the following web address:

[http://masterlist.msfc.nasa.gov/ed/index\\_new\\_ed.html](http://masterlist.msfc.nasa.gov/ed/index_new_ed.html)

Thus, any copy printed from the electronic system is **uncontrolled**.

- 3.11 SST Controlled non-electronic Version. The only SST documents that will be maintained and controlled in paper for are TCP and TPS procedures. The The controlled copy of these documents shall **NOT** be stored and controlled through the MSFC Document Library Master List System. The test engineer responsible for test conduct of the specific test program will maintain the signed/approved TCP's and TPS's. Any SST TCP or TPS not verified by the test engineer is for historical or reference use only and cannot be used for test conduct.
- 3.12 Uncontrolled Copies. Copies printed from the Document Library Master List or the signed original document (TPS or TCP).

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 5 of 12

### Acronym Definitions:

CS: Control System

DCC: Document Control Custodian

FAP: Facility Activation Procedure

FOP: Facility Operating Procedure

LCS: Load Control System

MAS: Measurement Acquisition System

MSFC: Marshall Space Flight Center

OWI: Organizational Work Instructions

QRC: Quality Record Custodian

SLTMAS: Structural Loads Test Measurement Acquisition System

SOP: Standard Operating Procedure

TCP: Test and Checkout Procedure

TPS: Test Preparation Sheet

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 6 of 12

## 4. INSTRUCTIONS

### 4.1 New Work

- 4.1.1 Any team member contacted by a customer should refer them to the SST team leader to coordinate work activities.
- 4.1.2 The team leader will assign a unique Test Program Number (TPN) to the task. This TPN will conform to the following format:

SST-XXX

└──────── Sequential number starting with 001.

The database of TPN's will be maintained in the "ED72 FOLDER" on the MSFC server system at <\\Msfc-data1\wpsgroup1\MSFC32\GRP01\ED72>.

- 4.1.3 A file folder will be established in the SST Central Filing System per section 4.4 of this document.
- 4.1.4 Initially only basic information concerning the work (such as Task Agreement number, CWC number, requesters name, cost estimate, etc.) will be placed in the file. At this time nothing is required.
- 4.1.5 A Rough Order of Magnitude (ROM) cost estimate based on the requirements provided will be provided to the customer. This is only an ROM estimate and is not a commitment from the SST.
- 4.1.6 The SST team leader will assign the task to a test engineer to plan, coordinate and conduct the testing activities.
- 4.1.7 At the conclusion of the test the test engineer will prepare a memorandum to be signed by the Group Leader to document the work performed. See section 4.5 for details of information required to document the SST work activities.

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 7 of 12

## 4.2 Document Control:

- 4.2.1 **SST FAP, FOP, and SOP Documents:** The numbering system and content of these SST documents shall be in accordance with ED27-OWI-003. These documents shall have the following statement at the bottom of every page.

**“CHECK THE MASTERLIST—VERIFY THAT THIS IS THE CORRECT  
VERSION BEFORE USE”**

The controlled copy of these documents shall be stored and controlled through the MSFC Document Library Master List System. The ED27 Document Library Master List can be found at:

[http://masterlist.msfc.nasa.gov/ed/index\\_new\\_ed.html](http://masterlist.msfc.nasa.gov/ed/index_new_ed.html).

Any SST OWI, FAP, FOP, and SOP not on the ED27 Document Library Master List is for historical or reference use only and cannot be used for test conduct.

The controlled document revision indicator for these type documents will consist of the same document number as the one it supersedes, plus the work “REVISION” and the appropriate uppercase revision letter beginning with the letter “A”. For each succeeding revision, a revision letter will be assigned in alphabetical sequence. After Y, follow with AA, AB, AC, etc. Letters I, O, Q, S, X and Z will not be used as single or double letter entries.

- 4.2.2 **SST TCP and TPS Documents:** The numbering system and content of these SST documents shall be in accordance with ED27-OWI-003. These documents shall have the following statement at the bottom of every page.

**“CHECK WITH THE TEST ENGINEER--VERIFY THAT THIS IS THE  
CORRECT VERSION BEFORE USE”**

The controlled copy of these documents shall **NOT** be stored and controlled through the MSFC Document Library Master List System. The test engineer responsible for test conduct of the specific test program will maintain the signed/approved TCP's and TPS's. Any SST TCP or TPS not verified by the test engineer is for historical or reference use only and cannot be used for test conduct.

The controlled document for SST TCP and TPS documents shall **NOT** be revised. If changes in test requirements cannot be suitably documented using the “red line” or test procedure deviation procedures outlined in ED27-OWI-003 the TCP or TPS shall be rewritten and a new procedure number assigned. This shall be documented in the

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 8 of 12

cancelled procedure to describe why this is required and stating the superceding procedure number.

All SST TCP's and TPS's generated will be listed in the procedure database maintained in the "ED72 FOLDER" on the MSFC server system at

<\\Msfc-data1\wpsgroup1\MSFC32\GRP01\ED72>.

4.2.3 **Procedure Deviations & Discrepancies:** This activity shall be in accordance with ED27-OWI-003.

4.3 **Document Custodians.** The Quality Record Custodian (QRC), Master List Custodian (MLC), and Document Control Custodian (DCC) for SST shall be named by the Group Leader in a memorandum kept on file in the ED27 file system.

4.4 **SST Central Filing System.** The SST Central Filing System is the set of filing cabinets containing the documentation for each SST test program. The filing cabinets are labeled "**SST CENTRAL FILES**". The label also identifies the DCC's name, building, room, and telephone number. These files are setup in ascending order using the Test Project Number (TPN).

To document the activities associated with tests performed by the SST, a test report package will be generated at the conclusion of each test conduct. This test report package will be the record that demonstrates compliance with specified test requirements. Distribution of the report package is determined by the Test Engineer and the SST team leader.

4.5 **Test Report Package.** As a minimum, the following items will be included in a test report package.

4.5.1 **Cover Memorandum.** A memorandum shall be written for each test performed by the SST in accordance with ED27-OWI-001. The information included in the body text will include, as a minimum:

- 1) The Test Program Number (TPN)
- 2) The Test Project Name
- 3) The Test Title
- 4) The Test Completion Date
- 5) The Test Location
- 6) The Brief Description Of The Test
- 7) The Description Of Any Noteworthy Anomalies
- 8) The Point Of Contact For Response To Questions



Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 9 of 12

- 4.5.2 Original Procedures. The original signed copy of the TCP kept by the Test Engineer shall be included in the test report package.
- 4.5.3 “AS RUN RECORD COPY” Procedures. The signed/stamped “AS RUN RECORD COPY” procedures associated with the test shall be included in the test report package. The “AS RUN RECORD COPY” Procedures would include any related TDRs and TPDs. It could include other associated procedures such as a FAP, FOP, and TPSs. A FAP, FOP, or TPSs would only be included in the test report package if test engineer deemed them as essential to the documentation of the test program.
- 4.4.4 Photographs. Any still photographs that are required to provide a general descriptive overview of the test setup and instrumentation will be included. A listing of the numbers for the photographic negatives is an acceptable substitute for the actual photographs.
- 4.4.5 Test Data. Any test data that was recorded on paper when no electronic copy of the data is available will be included. All electronically recorded or stored data will be maintained per section 4.6.
- 4.4.6 Equipment List. A listing of any special calibrated equipment used during testing not recorded as part of the MAS database or Control System will be included.
- 4.4.7 MAS Calibration Information. A completed MAS Calibration Record Sheet (see ED27-OWI-SST-002) will be included, if applicable.
- 4.4.8 CS Calibration Information. A completed LCS Calibration Record Sheet (see ED27-OWI-SST-002) will be included, if applicable.
- 4.4.9 Test Requirements Document: Signed copies of all test requirements documents that defined the tests will be included.
- 4.5 Historical Document Filing System**. As OWI’s and procedures are revised or deleted they shall be removed from the active files and a copy may be but is not required to be placed in the Historical records files. These files are located in Building 4619 SST central files and shall be labeled **“For Historical or Reference ONLY”**.

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 10 of 12

**4.6 Electronic Data Control.** All SST digital computer generated test data will be cataloged and stored in the SST Data File System. The procedures for storage and control of the data are as follows.

1. After completion of testing, the measurement system operator will archive the test instrumentation database, the test measurement data (in engineering units format), and the electronic test measurement event log to electronic storage media (typically a computer hard disk and/or removable high-capacity computer storage media) in Building 4619, room 128.
2. The measurement system operator will enter the Test Program Number (TPN), test title, test date, and names of included data files in an electronic inventory listing stored on the electronic data archive medium, assigning a unique index number to each test. Other descriptive information, e.g., procedure number and test condition, may be added to the electronic inventory listing at the discretion of the operator.
3. The data storage custodian, or a measurement system operator in concert with the custodian, will store a separate backup copy of the archived data and electronic inventory listing four times per year, minimum.
4. The limited finite storage area in Building 4619, Room 128 may require relocation of older records by the data storage custodian. Any area used for the storage of test data shall provide an environment that assures secure storage and non-degrading effects to the electronic data storage medium. These areas will be documented in Building 4619, Room 128.

The stored data files and the electronic inventory list shall be **QUALITY RECORDS**.

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 11 of 12

## **4.7 QUALITY RECORDS**

Quality records generated by SST of ED27 are as follows.

<u>RECORD TYPE</u>	<u>LOCATION</u>	<u>RETENTION</u>
Test Report Package	B4619, SST Central Files	10 years
Test Data	Bldg 4619/Rm 128	10 years
Test Data inventory list	* ED72 FOLDER	10 years
Torque wrench log	B4619, Wrench Storage area	3 years, Purge annually

\* ED72 FOLDER SITE: <\\Msfc-data1\wpsgroup1\MSFC32\GRP01\ED72>

The areas used to store quality records shall be labeled “SST CENTRAL FILES” and list the names and telephone numbers of the ED27 Quality Records Custodian and Alternate.

## **4.8 CALIBRATED EQUIPMENT CONTROL**

Refer to ED27-OWI-SST-002

## **4.9 Test Configuration Control**

The configuration control procedures for all Quasi-Static testing of flight hardware are delineated in ED27-OWI-003.

## **4.10 Work Authorization**

Defined in ED01-OWI-001.

## **5. PERSONNEL TRAINING AND CERTIFICATION**

Defined in ED27-OWI-001

## **6. FLOW DIAGRAM**

Marshall Space Flight Center Organizational Work Instruction		
Work Process Instructions	ED27-OWI-SST-001	Baseline
	JANUARY 2, 2000	Page 12 of 12

